

Computer science is more than just a field; it is a discipline.

Effective computer science instructors not only provide students with knowledge but also opportunities to think and behave in alignment with the discipline. I believe that students learn by doing; however, doing well comes with experience. I also believe that students learn best when they're engaged with the material. My teaching philosophy, therefore, centers around the idea that these two beliefs can be reconciled to produce actionable pedagogy. My personal attempts at this include: i) clearly defining expectations; ii) structuring work in a way that promotes self-efficacy; and iii) using evidence-based teaching practices. A summary of each is provided below.

Defining Expectations As a member of my department's curriculum committee, I have helped define course-specific learning outcomes for many of the undergraduate courses that I teach. When I teach one of these courses, I present the learning outcomes to students multiple times throughout a semester. The entire list is usually given alongside the syllabus, and specific outcomes are listed near the top of each assignment, including readings. In some courses, I elect to replace the proprietary textbook offering with Open Educational Resources (OERs). These resources, some of which I authored myself, often include readings, tutorials, exercises, and videos that each focus on specific sets of learning outcomes. Data ascertained from my own students via surveys¹ suggest that my use of OERs saves them money, makes it easier for them to study, and reduces their anxiety.

Promoting Self-Efficacy Regardless of whether an instructor's classroom teaching style involves a traditional lecture, flipped approach, or some combination of both, a growing body of research shows that providing students with structured opportunities to actively engage with material helps build their confidence and positively impacts their learning. When guided The more students capacity to execute behaviors necessary to produce specific In my own courses, I make time to guide students through a set of structured in-class exercises that allow them to learn and apply course content in a manner consistent with the discipline. In programming-based courses, this means they write code and use tools of the trade; in my computer ethics course, this means they actively question the impact of technology-related moral dilemmas. In most cases, the exercises can be done in small groups, allowing students to discuss different perspectives on the same material. Data from my own students² suggest that my active learning exercises give them more confidence in their understanding of the material and lead them to ask better questions.

Evidence-Based Teaching Practices Instructors have a professional and ethical responsibility to participate in lifelong learning in their discipline and how to effectively teach it. They should participate in professional development opportunities, remain up to date with discipline-based education research, and, if possible, engage in their own scholarship of teaching and learning. My own endeavors involve routinely measuring the sentiment and effectiveness of my classroom interventions using responses from pre- and post-surveys^{1,2} and other data over multiple semesters; the results of this work have been used to effect change in my courses. I also participate in conferences sponsored by the ACM Special Interest Group on Computing Education (SIGCSE) and workshops hosted by the Scientists Engaged in Educational Research (SEER) Center and the UGA Center for Teaching and Learning (CTL).

¹UGA IRB ID#PROJECT00000786. "Reducing State Anxiety in CSE with Active OERs and Peer-based AL"

²UGA IRB ID#STUDY00006734. "Impact of Active Learning in CS"